Simem S.p.a., 37046 Minerbe (VR), Italy

Transforming prestressed beam production through full automation

Cretebeam is a state-of-the-art plant designed for large-scale, industrialized production of prestressed beams. The system integrates several fully automated and interconnected modules capable of completing the entire production cycle with the support of only three operators. Its modular design also allows the plant to be adapted for future integrations or expansions, depending on the desired output.

A fully automated production system

The process begins with the arrival of an empty mold via the lower transport line. The U-shaped mold is positioned by an elevator in the loading area, where the operator places the steel reinforcement and spacers inside it.

Once activated, the automated dosing bucket moves along the length of the molds, releasing the concrete with precise control. The automation system allows operators to set both the length and the quantity of concrete to be poured. After casting, the mold is automatically vibrated to remove air pockets and ensure a perfectly homogeneous surface.

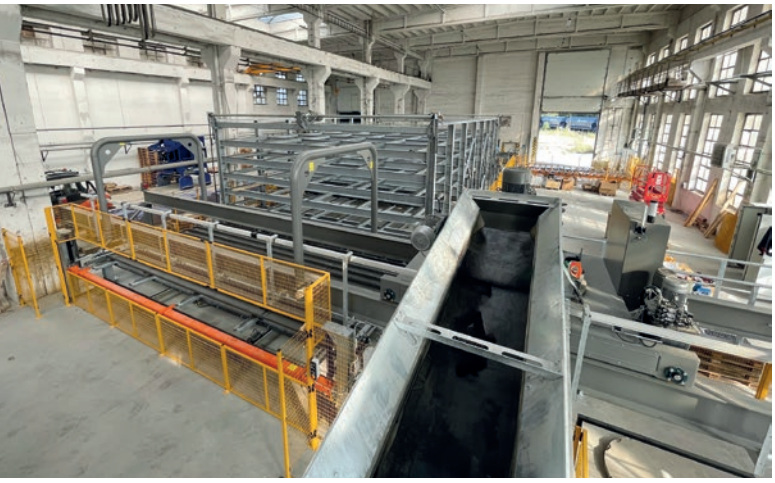
The curing phase takes place in the central body of the plant, which includes six levels managed by an automatic piston-driven elevator system. The movement of the molds is coordinated by control software that determines curing times and beam unloading according to the daily production schedule.

Safe and efficient demolding

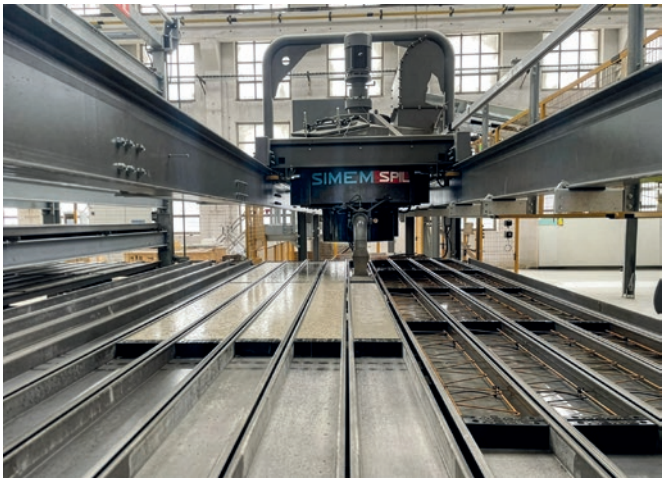
The demolding phase is typically the most critical and demanding stage. For this reason, a system has been developed to ensure both operator safety and production efficiency. The tilting unit receives the cured mold from the storage area via pistons.

Through the combined action of the electric tilting device and a hydraulically operated cover, the mold is secured and rotated. Once inverted, vibration helps release the cured beam from the mold together with the spacers, preparing it for the next phase.

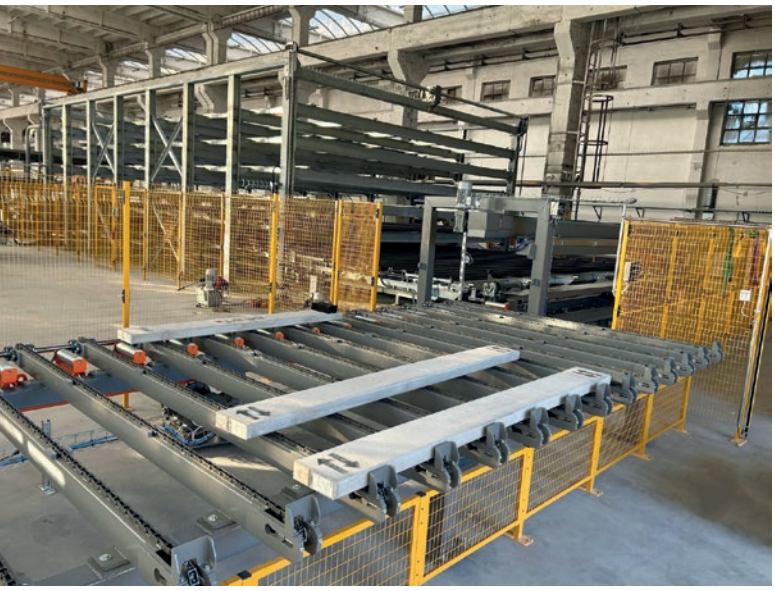
An additional operational advantage comes from the multifunction pusher, which transfers the beams onto the unloading roller conveyor. During its return movement, the same device cleans the mold and evenly distributes a release oil through an integrated nozzle. This ensures the plant is immediately ready for a new filling cycle, maintaining continuous workflow and minimizing manual intervention.
Once on the roller conveyor, the beam is moved to the pickup point, where the operator can collect it using a forklift or an automated gripping system.



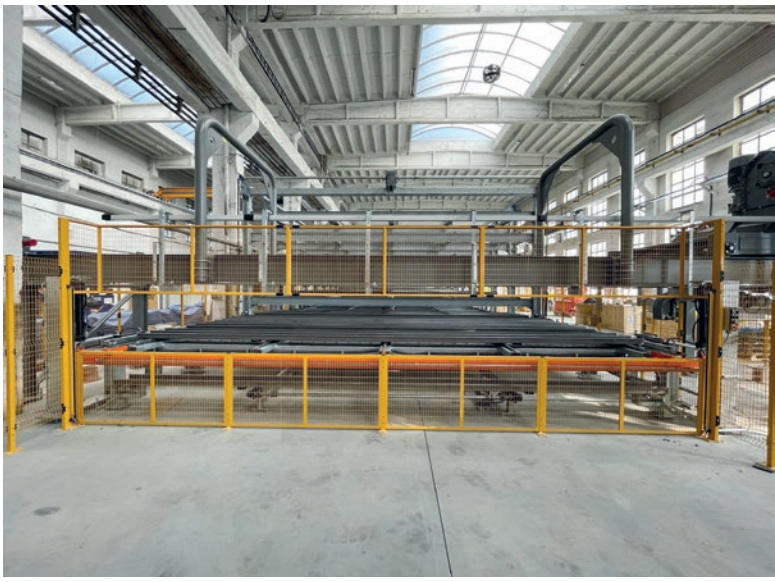
The curing chamber allows for high storage and therefore an increase in overall productivity



The dosing bucket has been designed for a precise and homogeneous jet



The tilting system ensures automatic and easy demoulding



Safety was a central focus in the design of the facility

All the advantages of a high-performance plant

- Precision mixing: The Simem mixer ensures accuracy and quality in the mixing and dosing phases, backed by over 60 years of industry experience.
- High storage capacity: The Cretebeam system features six storage levels, each capable of holding up to 42 molds. Considering 1-meter beams, each line can handle 7 beams per mold, for a total of 1,764 beams.
- High productivity: The system is configured to produce one mold every 3 minutes, and can be optimized to one every 2 minutes, resulting in up to 240 beams per day.
- Minimal staff requirements: Thanks to its high level of automation, only three operators are needed to oversee the plant's main functions, working safely without continuous heavy lifting.
- Smart scheduling: The control software allows daily production to be programmed, requiring the operator only to supply concrete to the system.
- Safety: Protective barriers are positioned along all critical and moving sections. If any movement is detected in a restricted area, the plant automatically stops.
- Versatility: The automation system can adjust the bucket's speed and dosing parameters, allowing the plant to easily adapt to any type of concrete.

A project in service of excellence

In the case of a manual production setup, you can produce around 20 beams per day. With the installation of the Cretebeam plant, production can triple, without increasing the number of personnel who also work under significantly safer conditions.

Thanks to the modular capacity of the system, the client can also adapt production to different types of precast elements and tested beam lengths, thereby expanding business opportunities. Simem development of Cretebeam reflects today's commitment to investing in high-automation technologies to enhance product quality, reduce production time, and increase safety conditions for workers. ■

Minimal footprint, limited but safe workforce, increased productivity: these are the main advantages of the Cretebeam system.

FURTHER INFORMATION

Simem S.p.a.
Viale dell'Industria, 24
37046 Minerbe (VR), Italy
T +39 442 640014
info@simem.com
www.simem.com